

IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Currently Amended): A semiconductor photodetector comprising:

a semi-insulating substrate having an upper step surface, a middle step surface, and a lower step surface with their respective heights different from each other in a top surface portion, the lower step surface being located between the upper step surface and the middle step surface in a lateral direction, wherein a side wall forming a boundary between the lower step surface and the upper surface being inclined so as to form an acute angle between the side wall and the lower step surface;

a first semiconductor layer formed immediately above the lower step surface, having a first top surface portion of a flat surface shape with a height equal to that of the middle step surface and a second top surface portion with a height equal to or higher than that of the first top surface portion, and comprising a first impurity;

a second semiconductor layer formed above the second top surface portion of the first semiconductor layer, having a top surface portion of a flat surface shape with a height equal to that of the upper step surface, and comprising a second impurity;

a first electrode provided astride and above the first top surface portion of the first semiconductor layer and the middle step surface of the semi-insulating substrate; and

a second electrode provided astride and above the top surface portion of the second semiconductor layer and the upper step surface of the semi-insulating substrate.

Claim 2 (Original): The semiconductor photodetector according to Claim 1, further comprising a third semiconductor layer formed between the first semiconductor layer and the second semiconductor layer and having a carrier density lower than that of the first semiconductor layer or the second semiconductor layer.

Claim 3 (Canceled).

Claim 4 (Currently Amended): A method of production of a semiconductor photodetector comprising:

a first step of forming a recess with a predetermined depth in a semi-insulating substrate by etching, wherein a distance between two side walls of the recess increases toward a bottom of the recess so as to form an inverted mesa shape;

a second step of forming a stack of a first semiconductor layer comprising a first impurity and a second semiconductor layer comprising a second impurity, selectively only in the recess of the semi-insulating substrate formed in the first step;

a third step of further etching a part of the semi-insulating substrate so as to expose at least a portion of the first semiconductor layer formed in the second step; and

a fourth step of laying a first electrode in contact with the exposed portion of the first semiconductor layer exposed in the third step and laying a second electrode in contact with the second semiconductor layer above the semi-insulating substrate.

Claim 5 (Original): The method according to Claim 4, wherein the second step is to form the stack of the first semiconductor layer and the second semiconductor layer by vapor deposition.

Claim 6 (Canceled).